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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q68278

Shigeru KATAYAMA, *et al.*

Appln. No.: 10/073,907

Group Art Unit: 1773

Confirmation No.: 4762

Examiner: Ramsey E. ZACHARIA

Filed: February 14, 2002

For: PLASTIC OBJECT

RESPONSE UNDER 37 C.F.R. § 1.111

MAIL STOP NON-FEE AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Please consider the remarks below in response to the Action mailed January 14, 2004.

Claims 1 and 3-6 are all the claims pending in the application.

At Section No. 2 (page 2) of the Action, the Examiner has rejected Claims 1 and 3-6 under 35 U.S.C. § 102(b) as allegedly being anticipated by Japanese Patent Application Publication No. 2000-056112 ("JP '112").

Applicants respectfully traverse.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631 (Fed. Cir. 1987); MPEP §2131. The identical invention must be shown in as complete detail as is contained in the claim. Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

JP '112 does not anticipate the claimed plastic object because JP '112 does not show in complete detail the claimed plastic object having a structurally modified part whose structure has been modified by irradiation with a laser light having a pulse duration of 10^{-12} second or shorter,

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wherein the laser light having a pulse duration of 10^{-12} second or shorter has an irradiation energy of 500 mW or lower.

In general, the relationship between a power (W) of a laser irradiated and an energy (j) per pulse is shown by the equation $W = (\text{frequency}) \times (\text{j/pulse})$.

Example 1 of JP '112 discloses a titanium sapphire laser having a wavelength of 800 nm, a pulse duration of 0.1 picosecond (1×10^{-13} second) and an energy of 1 mJ. JP '112, however, does not disclose the frequency of this pulse laser.

JP '112 merely describes 1 mJ as energy. If this means an energy obtained by (energy per pulse) \times (frequency), the power is 1 mW. On the other hand, if it means energy per pulse, the power is $(1 \times 10^{-3}) \times (\text{frequency})$. Because JP '112 does not clearly disclose the frequency, the energy intended in JP '112 is unclear.

At the bottom of page 2 of the Action, the Examiner has calculated the power from energy of light having a wavelength of 800 nm and a pulse duration, but this is not correct. In addition, the energy calculated by the Examiner (2.5×10^{-19} J) differs greatly from the energy (1×10^{-3} J) in Example 1 of JP '112.

In the inventive examples of the present application, a pulse laser having a wavelength of 800 nm, a pulse duration of 150×10^{-15} second, and a frequency of 200 kHz is irradiated under the condition of irradiation energy of 40 mW. Therefore, the energy per pulse (E/pulse) under this condition is:

$$(E/\text{pulse}) = (40 \times 10^{-3}) / (200 \times 10^3) = 0.2 \times 10^{-6} / \text{pulse} = 200 \text{ mJ/pulse}.$$

Furthermore, in examining the invention as a whole, the invention as a whole must be delineated. In delineating the invention as a whole, it is necessary to look not only to the subject matter which is literally recited in the claim in question, but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification. Just as a chemical and its properties are examined, it is the invention as a whole, and not some part of it, which must be examined.

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In the present case, the claimed plastic object will have at least one of a variety of unique properties or characteristics imparted to it by the recited laser light irradiation. The imparted property or characteristic is inherent to the claimed plastic object and disclosed in the specification. Applicants refer to page 17, line 22, through page 20, line 9, and, in particular, page 19, line 25, through page 20, line 9.

For the foregoing reasons, Applicants respectfully request that the Examiner reconsider and withdraw the §102(b) rejection based on JP '112.

At Section Nos. 3 and 4 of the Action, Claims 1, 4 and 5 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U.S. Patent No. 6,529,228 to Koide, *et al.* ("Koide").

Applicants respectfully traverse.

Koide discloses that an induced structure is formed by irradiating a pulse laser smaller than 1 picosecond to an object through a mask, thereby utilizing ablation.

The invention claimed in Claims 1, 4, and 5 does not utilize a specific pattern, such as a mask. The invention is directed to embodiments wherein an induced structure having a nearly circular or rectangular cross-section extending to a direction perpendicular or vertical to an irradiation direction of a laser can be formed not only at the site limited to a focus of a laser, but also in an inner portion of a plastic object, without utilizing a specific pattern such as a mask.

Thus, the presently claimed invention clearly differs from Koide.

For the foregoing reasons, Applicants respectfully request that the Examiner reconsider and withdraw the §102(b) rejection based on Koide.

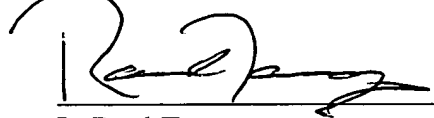
Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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